

REMARKS

Appreciation is hereby expressed to Examiner McClendon for the interview so courteously granted on February 28, 2002. Pursuant to that interview, Claims 1-3 have been amended to more definitely set forth the invention and obviate the rejection. In addition, new Claims 4-8 have been added to claim specific aspects of the present invention. Support for the amendment of Claim 1 can be found in the Specification on page 6, lines 10-16. Support for new Claim 6 can be found in the Specification in the paragraph bridging pages 10 and 11, and on page 13, last paragraph. Support for new Claim 7 can be found in the Specification on page 6, lines 10-16, the paragraph bridging pages 10 and 11, and on page 13, last paragraph. Support for new Claim 8 can be found in original Claim 2. The negative limitations set forth in Claims 1, 4, and 7 is the anion described in the Lamanna, et al. reference, U.S. Patent 5,554,664 applied in the present application. The claimed composition herein is believed not to present new matter. Claims 1-8 are in the application.

Reconsideration is respectfully requested of the rejection of Claims 1-3 under 35 U.S.C. § 102(b) as being anticipated by Lamanna, et al.

The present invention relates to a cationic photocatalyst composition and a photocurable composition which can assure a sufficient open time after irradiation and enhance the adhesive strength after the cure. These goals are accomplished by using a

cationic photocatalyst composition comprising a photosensitive onium salt having a low thermal catalytic activity in the approximate temperature range of 20-80°C, together with a compound either represented by Formula (1) in the claims or having, as a substituting group, a structure of formula (1).

Applicants unexpectedly discovered that when such a composition is used in combination with a cationically photopolymerizable compound and irradiated, the action of the compound represented by the Formula (1) not only insures a sufficient open time after irradiation, but also results in the provision of a cured product which has been unexpectedly found to exhibit the same level of adhesion as those obtained by using conventional cationic photocatalysts. (See Specification, page 40, lines 11-24.)

This type of adhesive is especially advantageous where a sufficient open time is needed such as to allow easy joint operations before curing of the adhesive. Also, the adhesive of the present invention also provides sufficient adhesive strength after cure, as well as enhanced adhesion and durability. (See Specification, page 41.)

The Lamanna, et al. reference discloses photocurable compositions comprising cationic photoinitiators with fluorocarbon anions. The salts of the anions and cations described in Lamanna, et al. may be activated by radiation or by heat or may require two-stage activation involving radiation followed by heat. (Column 8,

lines 58-60.) The Lamanna, et al. reaction may use a catalyst or initiator salt prepared by anion exchange or metathesis reactions by combining initiator or catalyst free acids or salts that contain conventional counter anions. Generally metathesis reactions can be carried out at temperature ranges from about -80°C to about 100°C. (Column 9, lines 13-21.)

In contrast, the composition of the present invention is activated not by thermal polymerization but instead by photopolymerization. This is advantageous since it avoids thermal polymerization during storage in areas where excessive temperatures may initiate polymerization while on the shelf. Accordingly, the onium salts of the present invention have low thermal catalytic activities as now set forth in Claims 1 and 7 herein.

As discussed above, the Lamanna, et al. reference describes energy sensitive salts which are activated by photo energy, thermal energy and the like. These salts have a particular fluorocarbon anion as a counter anion. However, the onium salts of the present invention have no fluorocarbon anion.

There is no disclosure whatever in the Lamanna, et al. reference for the use of the onium salts as called for herein which exclude the particular fluorocarbon anions. Moreover, there is no disclosure in Lamanna, et al. that the onium salts would have low thermal catalytic activities only in the approximate temperature range of 20-80 and that such onium salts exclude the particular fluorocarbon anions disclosed in Lamanna, et al. Consequently, it

is believed that Lamanna, et al. neither anticipate nor render unpatentably obvious the subject matter as now called for in the claims herein. Consequently, it is believed that the Examiner would be justified in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

Reconsideration is respectfully requested of the rejection of Claims 1-3 under 35 U.S.C. § 103(a) as being unpatentable over Mahoney, et al. in view of Lamanna, et al.

The Lamanna, et al. reference is discussed above.

It is noted that the Examiner recognizes that the Mahoney, et al. reference fails to disclose using onium salts in the organometallic initiator system used in the curable compositions of Mahoney, et al. It is also noted that the Examiner recognizes that the Lamanna, et al. reference discloses initiator systems comprising an organometallic cation and a fluorocarbon anion in combination with a stabilizing agent.

However, it is respectfully submitted that there is no disclosure or suggestion in either of these references of substituting an onium salt photoinitiator for the organometallic complex in combination with a crown ether stabilizer as urged by the Examiner in the rejection.

The Examiner's suggested motivation for this substitution, i.e., to obtain a cationically curable composition that would have photoinitiators that display improved solubility in organo media, such as low polarity solvents, or non-polar solvents, and which

display low corrosive activity after use cannot possibly be expected considering the complexity of the composition.

Moreover, there is no suggestion or teaching in either of the references of record that such a substitution would provide improved solubility in organo media and/or display low corrosive activity after use.

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion, or incentives supporting the combination. In re Geiger, 815 F2d 686, 2 USPQ 2d 1276 (CAFC, 1987); and In re Fine, 837 F2d 1071, 5 USPQ 2d 1596 (CAFC, 1998).

In the present case, it is respectfully submitted that there is no teaching, suggestion or incentive to combine Mahoney, et al. with Lamanna, et al. in the manner suggested by the Examiner. Moreover, the Examiner has not presented any proof that a cationic curable composition would obtain having improved solubility in organo media and/or have low corrosive activity after use. For this reason, it is respectfully submitted that the rejection fails, as a matter of law, in view of the above authorities. Consequently, the Examiner would be warranted in no longer maintaining the rejection. Withdrawal of the rejection is accordingly respectfully requested.

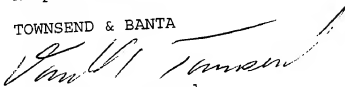
Applicants note the prior art made of record by the Examiner, the Examiner apparently recognizing that this prior art is not relevant inasmuch as the Examiner has not predicated a rejection

thereon.

The application is now believed to be in condition for allowance and early action and allowance thereof is accordingly respectfully requested. If there is any reason why the application cannot be allowed at the present time, it is respectfully requested that the Examiner contact the undersigned at the number listed below to resolve any problems.

Respectfully submitted

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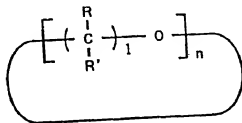
Date: February 28, 2002

MARKED-UP VERSION OF AMENDED CLAIMS 1-3

Please substitute the following amended Claims 1-3 for the original Claims 1-3.

1. (Amended) A cationic photocatalyst composition [characterized as containing] comprising a photosensitive onium salt having low thermal catalytic activities in the approximate temperature range of 20 to 80°C. and a compound either represented by the following formula (1) or [containing] having, as a substituting group, a structure of the following formula (1);

(1) $\left[\left(\begin{array}{c} \text{R} \\ | \\ \text{C} \\ | \\ \text{R}' \end{array} \right)_1 \text{O} \right]_n$



[()] wherein R and R' are [suitably] selected from hydrogen, halogen, saturated hydrocarbon groups, unsaturated hydrocarbon groups, substituting groups comprising any [suitable] combination of elements such as carbon, hydrogen, oxygen, nitrogen and sulfur; and 1 and n each is an integer of 2 or larger[()].

2. (Amended) A photocurable composition [characterized as containing] comprising:

the cationic photocatalyst composition [as recited in] of claim 1; and

a compound having at least one cationically polymerizable group in a molecule.

3. (Amended) [A] The photocurable composition [as recited in] of claim 2, [characterized in that] wherein said cationically polymerizable group is an epoxy group.